

# TAN WEI ZHEN

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## Skills

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- C/C++, C#, Java, Python(Pandas, Scikit-learn)
- SQL
- OpenGL, FMOD,
- Visual Studio, Visual Studio Code
- Android Studio, Kotlin, Jetpack Compose
- Unity
  - Photon PUN 2/Fusion, Azure Playfab, Firebase, XR Interaction Toolkit
- MySQL, Microsoft SQL Server
- Microsoft Internet Information Services(IIS)
- Ubuntu

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## Education

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### DigiPen Institute of Technology Singapore & Singapore Institute of Technology

Bachelor of Science in Computer Science in Real-Time Interactive Simulation

### Nanyang Polytechnic

Diploma in Game Development & Technology

2022

- MSC Maritime Digital Challenge Kanda Challenge Statement Champion (2021)
  - Developed VR prototype for Oculus Quest 2 using Unity Engine

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## Work Experience

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### Unity Developer

Turbo Jatt

Oct 2024 - Feb 2025

- Worked on Unity3D Multiplayer Mobile project using Photon Fusion
- Helped with backend development
  - SMS verification using Twilio
  - Send/Retrieve data from Tencent Cloud Object Storage

### Game Development Internship

YOOZOO Games

Mar 2022 - Jun 2022

- Worked on Unity3D Mobile AR project using ARFoundation
- Worked on chatbot prototype using gRPC

### 3D Intern

RoyceMedia Technologies

Nov 2021 - Feb 2022

- Worked on Unity3D WebGL project
- Made Android AR prototype using ARFoundation
- Made a simple multiplayer game prototype to learn how to use MQTT messages
- Helped with backend development
  - Create/Update REST API calls with ASP.NET core to send/retrieve data from database
  - Send and Retrieve data using MQTT

### Robotics Trainer

School of Robotics

May 2019 - Jan 2020

- Plan and prepare teaching materials
- Train and engage students with STEM Robotics & Coding enrichment courses
- Guide students to develop problem-solving and computational skills

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# Projects

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## 3D Custom Game Engine and Tools | GAM 350/300 (Team of 12 (9 programmers, 3 designers))

### RTZ\_Editor

- C++, OpenGL Windows Application able to support making a 3D physics-based action adventure game.
- Asset Browser with Filewatcher, Assets Pipeline with multi-threading to speed up asset compile times, and helped with game programming.

### GAM300

- Static library
- Architecture: Designed the core engine architecture with EnTT (and Reflection (entt::meta)), did the Animation System and Materials Pipeline, and Resource Manager with lazy loading.

### RTZ\_ResourcesPipeline

- Command-line Application.
- Compile assets such as textures, fonts, 3D models etc using compressorator, freetype, assimp into resources for the engine.

## Customer Database Android App

- Made with Unity for Android platform with Firebase for real-time database updates
- UX/UI: Designed an interface for tracking customer details and visit history.

## 3D Graphics Engine

- C++, OpenGL project with Dear ImGui, Eigen library
- 3D model loading using assimp, primitives intersection tests, Bounding Volume construction (AABB, spheres, OBB), Bounding Volume Hierarchy, View Frustum Culling, Octree, Kd-tree
- Built from scratch for Spatial Data Structures module.

## 2D Custom Game Engine and Tools | GAM 250/200 (Team of 8 (6 programmers, 2 designers))

- C++, OpenGL Windows Application able to support making a 2D physics-based platformer game
- Core Systems: Implemented a custom Entity-Component System based on a Sparse-set data structure for high-performance component data locality
- Audio System: Integrated FMOD to support spatial audio and complex sound event handling.
- Helped with Gameplay programming

## VR Multiplayer Training Simulation | NYP Final Year Project (Team of 5 (2 programmers, 2 artist, 1 business student))

- A virtual reality, real-time multiplayer, account-based, personalised training system (serious gaming)
- Made using Unity Engine for Oculus Quest 2 with Photon PUN2 and Playfab